

V. REMARKS

Claims 8-10 are rejected under 35 U.S.C. 103(a) as unpatentable over Hirota (EP 691 517) in view of Kujirai et al. (U.S. Patent No. 5,555,739). The rejection is respectfully traversed.

Hirota teaches an expansion valve. A valve casing is disposed to penetrate a high-pressure refrigerant passage connected to an inlet of an evaporator and a low-pressure refrigerant passage connected to an outlet of the evaporator which is formed so that the inside diameter of the low-pressure refrigerant passage is not smaller than the inside diameter of the high-pressure refrigerant passage. A unit which is integrally composed of a thermo-sensitive chamber for sensing any change in temperature of the refrigerant in the low-pressure refrigerant passage to raise or lower of the pressure therein. A valve mechanism is driven by the raised or lowered pressure in the thermo-sensitive chamber to open or close the high-pressure refrigerant channel. The unit is inserted into the valve casing from a side of the low-pressure refrigerant channel. The thermo-sensitive chamber is disposed in the opening at the inlet of the valve casing so that the opening is closed by the thermo-sensitive chamber and that the unit as a whole can be drawn out from the valve casing by pulling the thermo-sensitive chamber portion outwardly.

Kujirai discloses a cooler unit housing containing an evaporator. A pipe joint is positioned at and supported by an opening in a dashboard. The pipe joint has a first face facing toward a passenger room and a second face facing toward an engine room. An expansion valve unit is connected to the first face of the pipe joint. Each one of coolant inlet and outlet pipes has one end connected to the evaporator and the other end to the expansion valve unit. A grommet is disposed between a peripheral portion of the opening and an outer wall portion of the pipe joint thereby to establish sealing therebetween.

Claim 8, as amended, is directed to an expansion valve assembly that includes in expansion valve cassette unit, a housing and a generally flat flange. Claim 8 recites that the expansion valve cassette unit including an expansion

valve cassette flange member and a stepped-down pipe member connected to the expansion valve cassette flange member with the stepped-down pipe member defined by a first pipe section having a first diameter and a first through hole formed therethrough, a second pipe section having a second diameter and a second through hole formed therethrough and a third pipe section having a third diameter and a third through hole formed therethrough with the second pipe section connected to and between the first and third pipe sections and the second diameter being smaller than the first diameter and being larger than the third diameter and the first pipe section connected to the expansion valve cassette flange member. Claim 8 recites that the housing has a housing refrigerant path extending along a longitudinal direction and a stepped-down expansion valve cassette unit hole extending transversely to and through the housing refrigerant path and sized for accommodating the expansion valve cassette uniting a close-fitting relationship.

Claim 8, as amended, also recites that the stepped-down expansion valve cassette unit hole is defined by a mounting hole, a first hole section having a first hole diameter, a second hole section having a second hole diameter and a third hole section having a third hole diameter in communication with one another such that the mounting hole receives the expansion valve cassette flange member, the first hole section receives the first pipe section, the second hole section receives the second pipe section and the third hole section receives the third pipe section. Also, claim 8 recites that the housing refrigerant path includes a first housing refrigerant path portion having a refrigerant exit hole and aligned with the first through hole of the first pipe section, a second refrigerant path portion aligned with the second through hole of the second pipe section and a third refrigerant path portion having a refrigerant entrance hole and aligned with the third through hole of the third pipe section, the first housing refrigerant path portion, the second refrigerant path portion and the third refrigerant path portion disposed apart from and parallel to one another with the refrigerant entrance hole and the refrigerant exit hole formed into a common side surface of the housing. Additionally, claim 8 recites that the generally flat flange has a refrigerant

entrance path defined by a first flange pipe section and a refrigerant exit path defined by a second flange pipe section with the first and second flange pipe sections projecting from a common flat surface of the flange and extending parallel to one another and with the refrigerant entrance hole sized and adapted to receive the first flange pipe section in a sealed manner and the refrigerant exit hole sized and adapted to receive the second flange pipe section in a sealed manner and with the flange connected to the housing with the flat surface of the flange and the common side surface of the housing being in face-to-face contact with each other.

It is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 8, as amended. Specifically, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests an expansion valve cassette unit that includes an expansion valve cassette flange member and a stepped-down pipe member connected to the expansion valve cassette flange member with the stepped-down pipe member defined by a first pipe section having a first diameter and a first through hole formed therethrough, a second pipe section having a second diameter and a second through hole formed therethrough and a third pipe section having a third diameter and a third through hole formed therethrough with the second pipe section connected to and between the first and third pipe sections and the second diameter being smaller than the first diameter and being larger than the third diameter and the first pipe section connected to the expansion valve cassette flange member. Furthermore, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests a housing having a housing refrigerant path extending along a longitudinal direction and a stepped-down expansion valve cassette unit hole extending transversely to and through the housing refrigerant path and sized for accommodating the expansion valve cassette uniting a close-fitting relationship with the stepped-down expansion valve cassette unit hole being defined by a mounting hole, a first hole section having a first hole diameter, a second hole section having a second hole section and a third hole section having a third hole section in communication with

one another such that the mounting hole receives the expansion valve cassette flange member, the first hole section receives the first pipe section, the second hole section receives the second pipe section and the third hole section receives the third pipe section.

Furthermore, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests that the housing refrigerant path includes a first housing refrigerant path portion having a refrigerant exit hole and aligned with the first through hole of the first pipe section, a second refrigerant path portion aligned with the second through hole of the second pipe section and a third refrigerant path portion having a refrigerant entrance hole and aligned with the third through hole of the third pipe section, the first housing refrigerant path portion, the second refrigerant path portion and the third refrigerant path portion disposed apart from and parallel to one another. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that claim 8 is allowable over the applied art.

Claims 9 and 10 depend from claim 8 and include all of the features of claim 8. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 8 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Also, newly-added claim 11 includes features not shown in the applied art.


In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

Date: April 14, 2005

By:

A handwritten signature in black ink, appearing to read 'Carl Schaukowitch', written over a horizontal line.

Carl Schaukowitch
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